

REMARKS

The Applicant expresses appreciation for Examiner Bell's time during a telephonic conference with patent attorney Shireen Bacon on June 7, 2004. Applicant wishes to schedule an Examiner interview to continue the discussion with Examiner Bell in light of the amendments and remarks made herein.

Claims 1-21 were submitted for examination, and all stand rejected. New claim 22 has been added. In view of the following remarks, Applicant submits that all claims remaining in the case are in condition for allowance and that all other objections have been overcome.

The specification has been amended to correct some minor typographical errors. The specification has also been amended to specify that the acronym LCOS stands for "liquid crystal on silicon" rather than "liquid crystal on semiconductor". The misidentification of the meaning of the LCOS acronym in the original specification was apparently an inadvertent mistake by the drafting attorney. This conclusion is supported by the fact that the drafting attorney later amended claims to include the correct meaning of the LCOS acronym (see response filed on January 27, 2004). The currently proposed amendment to the specification does not add new matter, but merely provides the correct expansion of the LCOS acronym. As a result of such amendment, the rejections of claims 1-11 and 14 that are based on 35 U.S.C. 112 have been overcome.

Regarding the claims, Claims 1-3, 8, 9 and 18-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Busch (5,510,806) in view of Liao et al.

(6,681,005). However, Busch '806 and Liao '005 fail to suggest, disclose or teach all limitations for each rejected claim. Accordingly, the Office Action has failed to make a prima facie case of obviousness, and such rejections should be withdrawn.

The legal requirements for a prima facie case of obviousness are clear. "The examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness." MPEP § 2142. It is the Examiner's assertion that "selection of a specific type of LC would depend on what is well-known to use in this field and therefore made obvious." Office Action, page 3, section 6. Applicant disagrees. Busch '806 teaches a pivotal LCD projection structure mounted on the top side of a base housing, for pivotal movement. Busch '806, Abstract. In contrast, Applicant teaches an integrated micro projection device.

The cited references must teach or suggest all the claim limitations in order for a prima facie case of obviousness to lie. MPEP § 2142. The mere fact that a reference can be modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In the present case, as is explained below, the prior art does not suggest the desirability of the combination.

Furthermore, the level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999). Instead, there must be some objective

reason to modify the teaching of the reference. See MPEP § 2143.01 (argument that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness).

Busch '806 discloses a portable computer having an LCD projection display system. The computer of Busch includes a generally rectangular base housing in which the various operating circuitry and component of the computer are disposed. A conventional keyboard structure is operatively mounted on the top side of the base housing. A thin plastic display screen structure is secured to the base housing by a hinge. Busch further discloses that a small LCD projection structure carried by the base structure projects an image in magnified form onto the front side of the screen. The LCD projection structure includes a projection lens, an LCD projection panel, and a high intensity light source. During operation, an image is created on the LCD projection panel and projected to the screen. (see e.g., col. 3, line 9 to col. 4, line 30 and Figure 1).

The Office Action maintains that Busch '806 discloses a micro projector. Such is not the case. The Office Action maintains that Busch '806 discloses a micro projector, which is assertedly simply smaller than normal projector, at item 42 of Fig. 1 (Office Action, p. 3, section 6). However, Applicant clearly discloses that a micro projector is a semiconductor device that is integrated with the base electronics of a computing device. See Application, page 6, para 15 ("semi conductor devices of micro projection systems"; " semiconductor image devices"). Clearly, a semiconductor device embodying an image device, which

is integrated with the base electronics of the computing device, is not disclosed, suggested nor taught by Busch '806. Thus, a prima facie case of obviousness regarding Claims 1 and 18 have not been made. Claim 1, and the claims that depend from Claim 1, are allowable for at least this reason. Also, Claim 18 and its dependent claims are also allowable for this reason.

In addition, there is absolutely no suggestion or teaching in Busch '806 that the projection structure 42 could be incorporated into the computing module (see Application, p. 7, para. 17) rather than "mounted on the top side of the base housing for pivotal movement." Busch, Abstract. The Busch projection structure is mounted atop the housing structure in order to facilitate pivotal movement. Such aim would be abrogated by an integrated projection structure.

In contrast, Applicant has disclosed and claimed an *integrated* micro projection device. See, e.g., Application para 15 ("integration micro projection display" and "integrated projector" and "optical system can thus be designed to *fit inside* a mobile platform"). Figs. 2 and 3 make clear that embodiments of the claimed invention include an integrated optical subsystem such that the optical system fits inside the mobile platform rather than mounted on top of the base housing. Regarding Fig. 2, Applicant discloses that "micro projection unit [is] incorporated into the computing module 202." (Application, para 17). Regarding Fig. 3A, Applicant discloses a closed configuration "having an incorporated micro projector" (Application, para 20); the base unit 302 includes a "built-in micro projector" (Application, para 22). Regarding Fig. 3B,

Applicant discloses that the "innards" of the base unit 302 includes an optical subsystem 320. (Application, para 24). The optical subsystem 320 is housed in the base unit 320. Because the cited references fail to make a prima facie case of obviousness regarding an "integrated" micro projection device, Claim 1 and all its dependent claims are allowable. Similarly, because the cited references fail to make a prima facie case of obviousness regarding a micro projection system that is "integrated within said mobile computer," Claim 18, and all its dependent claims, are allowable.

Furthermore, there is absolutely no disclosure or teaching that the Busch '806 projection structure 42 could encompass LCOS technology. Applicants disclose that the integrated nature of the optical subsystem leads to features that are described and claimed by the Applicant. That is, "[t]he micro projector is integrated with the base electronics of the computing device" (para 15), which can lead to the use of "semiconductor devices of micro projection systems." (Id). Applicants further disclose that technologies for such a micro projection can include various types of micro displays such as mirror devices, LCOS devices, and laser projection devices.

Busch '806 does not disclose an integrated micro projection device. Busch teaches that the projection structure should be mounted on top of the base housing in order to provide for pivotal movement. Applicants teach that the micro projection unit is incorporated into the computing module (Application, p.

7, para. 17). Accordingly, there is no suggestion or motivation in Busch '806 that the teachings of Busch could be modified to incorporate LCOS technology.

Similarly, Liao '005 fails to provide such a suggestion or teaching. Liao '005 discloses a small size LCOS panel to be used in projectors or projection TVs. Liao '005 does not disclose, suggest nor teach the incorporation of an LCOS device into an integrated optical subsystem of a computing subsystem. Accordingly, the combination of Busch '806 and Liao '005 fail to disclose at least the following limitations of Claim 1:

- a computing subsystem to process data and execute program instructions; and
- an optical subsystem coupled to said computing subsystem, said optical subsystem comprising a micro projection device integrated into said apparatus to project an image for said computing subsystem onto a viewing surface, said micro projection device including a liquid crystal on silicon (LCOS) device.

(Claim 1, in part).

The combination of Busch '806 and Liao '005 also fail to disclose at least the following limitations of Claim 18:

- propagating said display data to a micro projection system that is integrated within said mobile computer;
- modulating light beams with a liquid crystal on silicon device in response to said display data; and
- projecting modulated light beams through optics.

(Claim 18, in part). Applicant respectfully submits that the rejections to Claim 1 and Claim 18 based on 35 U.S.C. §103(a) have been overcome. Furthermore, for

at least the same reasons noted above with respect to Claims 1 and 18, Claims 2-11 and 19-21 are similarly distinguishable over the Busch and Liao references.

Claims 4-6, 10-17 and 21 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Busch (5,510,806) and Liao et al. (6,681,005) in view of Miyashita (5,782,548). Claims 4-11 depend directly or indirectly on independent base Claim 1 and add additional limitations. Thus, they are allowable for at least the reasons discussed above in connection with Claim 1. Similarly, claim 21 depends from Claim 18 and is therefore allowable for at least the reasons set forth above in connection with Claim 18.

Regarding Claim 12, the Office Action states that Busch, Liao and Miyashita together teach the limitations of claim 12. A prima facie case of obviousness exists when (1) either the reference themselves or the knowledge generally available to one of ordinary skill in the art contain some suggestion or motivation to modify the reference or to combining the reference teachings; (2) a reasonable expectation of success exist; and (3) the prior art reference or references teach or suggest all the claim limitations. Here, neither the references themselves nor the art generally contain a suggestion or motivation to combine the reference teachings as suggested by the Office Action.

Here, neither Busch, Liao nor Miyashita, individually or in combination, teach or suggest the present claims. It is respectfully submitted that Busch, Liao and Miyashita do not teach or suggest a combination with each other. Busch discloses a portable computer having an LCD projection display system as

discussed above. (see e.g., col. 3, line 9 to col. 4, line 30 and Figures 1 and 2).

However, there is no teaching or suggestion that Busch discloses " a wireless mouse to receive user input." Nor do Busch or Liao disclose a wireless mouse to "send said user input to said processor via a first wireless communication link".

Miyashita does not remove the shortcomings of Busch and Liao.

Miyashita discloses an image projection system and a method of controlling a projected pointer. Miyashita discloses a liquid crystal projector to project an image to a screen. The projector can be remotely operated by a wireless remote controller. (see e.g. col. 6 line 64 to col. 7, line 30). Miyashita further discloses that a personal computer functions as the main control means for the liquid crystal projector. The computer comprises a mainframe, display, a keyboard, and a mouse. Figures 4 and 5 show both the keyboard and mouse physically connected to the computer. An operator operates keys of the keyboard and the mouse functioning as a pointing device to control the display position of the cursor. Miyashita discloses a remote controller, but notes the keyboard and mouse are the main operating portion. (see e.g., col. 8, line 46 to col. 9, line 14). In the event of a conflict between the remote controller with the keyboard and mouse, the remote controller is disregarded and priority is given to the directly connected keyboard and mouse. (see e.g., col. 10, lines 1-36). Miyashita is thus disclosing a keyboard directly connected to a computer, a mouse directly connected to a computer, and a remote controller. However, there is no teaching or suggestion that Miyashita discloses a wireless mouse or wireless keyboard.

The Office Action states that item 28 "trackball means" in Fig. 5 discloses "a wireless mouse to receive user input, and to send said user input to said processor via a first wireless communication link". However, item 28 trackball is part of the remote controller 20, and is not shown as part of the mouse 48. Accordingly, as is discussed above, Miyashita discloses a keyboard directly connected to a computer, a mouse directly connected to a computer, and a remote controller. The fact that the remote controller may have a trackball means does not convert the remote control into a mouse. As can be seen in Fig. 3, the trackball is clearly disclosed as part of the remote control 20, not the mouse 48 (Miyashita, Fig. 5). There is simply no teaching or suggestion that Miyashita discloses a wireless mouse or wireless keyboard.

Nor does Miyashita disclose any liquid crystal on silicon device. Thus, Miyashita fails to teach or disclose the claimed present invention.

In any event, even if Busch, Liao, and Miyashita were combined, such a combination would lack one or more features of independent base Claim 12. A combination of Busch, Liao and Miyashita would fail to teach or disclose:

- a wireless mouse coupled to said processor, said wireless mouse to receive user input, and to send said user input to said processor via a first wireless communication link;
- a light modulator coupled to said graphics controller, to receive said display data and to modulate light based on said display data;

(independent Claim 12, in part).

Therefore the combination of Busch, Liao and Miyashita fails to teach or disclose that claimed in independent base Claim 12. For the same reasons noted

above with respect to Claim 12, dependent Claims 13-17 are similarly distinguished over the Busch, Liao, and Miyashita references, alone or in combination.

New claim 22 includes a micro projection device to project an image for said computing subsystem onto a *detached* viewing surface. Busch discloses that it seeks to avoid problems, limitations and disadvantages commonly associated with conventional LDC display systems for portable computers, including expense of common LCD display panels, bulky thickness and size of such display panels, and relatively heavy weight of common LCD display panels. However, Busch does not seek to provide a detached screen. Indeed, all embodiments disclosed in Busch require an attached screen structure (see, e.g., col. 1, line 59 to col. 2, line 13; Fig. 1). In contrast, Applicant discloses and claims, in Claim 22, an apparatus that includes a micro projection device integrated into said apparatus to project an image for said computing subsystem onto a detached viewing surface.

Accordingly, all independent claims are in condition for allowance. For at least the foregoing reasons, all dependent claims are also in condition for allowance.

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Applicant respectfully submits that the applicable rejections have been overcome and must all be withdrawn. All claims are therefore in condition for allowance.

Please charge any shortages and credit any overcharges to our Deposit Account No. 02-2666. The Examiner is requested to call Shireen Irani Bacon at (512) 314-0435 to set up an interview.

Respectfully submitted,

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Shireen Irani Bacon
Registration No. 40,494
512.314.0435

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, CA 90025-1026
(408) 720-8300

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